HOQSF
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International Specialists in the Environment

MEMORANDUM

DATE: June 30, 1988

TO: John Osborn, FIT-RPO, USEPA, Region X

THRU: Jeffrey Villnow, FIT-OM, E&E, Seattle JV

FROM: for Glenn C. Roberts, FIT-SM, E&E, Seattle JV

SUBJ: Preliminary Assessment Reassessment/
Preliminary HRS Score for
City of Hoquiam Landfill
Hoquiam, Washington

REF: TDD F10-8804-37
PAN F10Z059PA

CC: William Glasser, HWD-SM, USEPA, Region X
David Bennett, HWD, USEPA, Region X
John J. Roland, FIT-PM, E&E, Seattle
Andrew Hafferty, E&E, Seattle

A file review for City of Hoquiam Landfill has been conducted to assess the previously conducted Preliminary Assessment (PA) and to develop a preliminary HRS score. Using the file and additional information, a preliminary HRS score of 20.03 for routes and 37.50 for direct contact was calculated based on the following information:

- The site is an active landfill operated by the City of Hoquiam.
- Observed releases of heavy metals to the ground were documented by sample analysis conducted by the Washington Department of Ecology.
- The landfill is unlined, and its leachate collection system has overflowed and allowed leachate to discharge to the Hoquiam River on several occasions.

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- The Hoquiam River is used by coho, chinook, and chum salmon for migration, spawning, and rearing. A coastal wetland exists approximately one mile to the south of the site. No people are known to be drinking surface water downstream of the site; the City of Hoquiam obtains its drinking water approximately one and one-half to two miles upstream from the site.

- The site is unfenced and unguarded during non-business hours.

Assumptions used to derive the score include:

- There are approximately 68 people using ground water for domestic purposes within three miles of the site. The closest well is approximately one mile from the site.

- Wastes containing hexavalent chromium were deposited in the landfill by ITT Rayonier over a twenty-three year period. The total of these wastes was estimated to be approximately 280 tons.

- Tetrachloroethylene sludge was disposed of in the landfill by a dry cleaner over a period of six years. The amount of this waste was estimated at over 5,000 pounds.

- It was assumed that no other hazardous wastes were deposited in the landfill.

- Based on a sample taken from a storm drain that discharges into the Hoquiam River, an observed release to surface water was assumed.

Additional information (i.e., more complete information on the quantities of hazardous wastes deposited at the landfill, and the number of people drinking water from within three miles of the site) may be needed to verify the assumptions used to obtain this score.

The City of Hoquiam has entered into a consent order with the Washington Department of Ecology to contract remedial investigation and feasibility studies related to contamination caused by the the site (Consent Order No. DE 86-S174). This work is scheduled for completion by September 15, 1988. Therefore, no further CERCLA work at this site is recommended at this time. Results should be forwarded to the EPA for inclusion in site files.

GCR:rls

Facility name: City of Hoquiam Landfill

Location: Hoquiam, Washington

EPA Region: _____

Person(s) in charge of the facility: _____

Name of Reviewer: Glenn Roberts Date: 10 May 88

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

Active landfill operated by City of Hoquiam. Hazardous wastes deposited include TCE sludge illegally disposed by dry cleaner for six yrs. (272 lbs/mo.), and approximately 280 tons of wastes containing approximately 0.2 percent hexavalent chromium. Releases have been observed to ground and surface water.

Scores: S_M = 20.03

S_{FE} =

S_{DC} = 37.50

FIGURE 1
HRS COVER SHEET

[1] Observed Release: Cd, Cr, Pb, CN^- detected in test wells DH1 & DH2 (WDOE Lab Data 3/141

[4] Waste Characteristics

- Tox./Persist = 3/3 (Cd, Cr, Pb)
- Haz Waste Quant. = ~280 tons chrom. Lignosulfonate Proc ITT Rayonier + ~5000 lbs. TCE sludge from Mast Western Inc.

[5] Targets

- Ground Water Use:
  Domestic Drinking Water
- Dist. to nearest well:
  ~1 mi. Hoquiam School District #28.
  SW¼ SE¼ Sec 3 T17N R10W
- Pop. Served: 12 wells
  18 x 3.5 = 63

Ground Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	P (Se
[1] Observed Release	0 (45)	1	45	45	
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2].					
[2] Route Characteristics					
Depth to Aquifer of Concern	0 1 2 3	2		6	
Net Precipitation	0 1 2 3	1		3	
Permeability of the Unsaturated Zone	0 1 2 3	1		3	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
[3] Containment	0 1 2 3	1		3	
[4] Waste Characteristics					
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 (4) 5 6 7 8	1	5	8	
Total Waste Characteristics Score			23	26	
[5] Targets					
Ground Water Use	0 1 (2)	3	9	9	
Distance to Nearest Well/Population Served	0 4 6 (8) 10 / 12 16 18 20 / 24 30 32 35 40	1	8	40	
Total Targets Score			17	49	
[6] If line [1] is 45, multiply [1] x [4] x [5] / If line [1] is 0, multiply [2] x [3] x [4] x [5]		17	595	57,330	
[7] Divide line [6] by 57,330 and multiply by 100			S_{gw} = 30.69		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

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[1] Observed Release: Cd detected in storm drain that discharges to Hoquiam River

[4] Waste Characteristics

Tox / Persist.: Heavy metals

Haz. Waste Quant: ~280 tons chromium sulfonate + ~5000 lbs. TCE sludge

[5] Targets

- Sfc Water Use:

  Economically important resources e.g. migrating salmon use Hoquiam R. Also recreation.

- Dist. to Sensitive Env.:

  ~1 mi to coastal wetlands

- Pop Served: 0

  Dist to Intake: N/A

Surface Water Route Work Sheet

Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0 (45)	1	45	45	4.1
If observed release is given a value of 45, proceed to line [4]. If observed release is given a value of 0, proceed to line [2].					
[2] Route Characteristics					4.2
Facility Slope and Intervening Terrain	0 1 2 3	1		3	
1-yr. 24-hr. Rainfall	0 1 2 3	1		3	
Distance to Nearest Surface Water	0 1 2 3	2		6	
Physical State	0 1 2 3	1		3	
Total Route Characteristics Score				15	
[3] Containment	0 1 2 3	1		3	4.3
[4] Waste Characteristics					4.4
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Hazardous Waste Quantity	0 1 2 3 4 (5) 6 7 8	1	5	8	
Total Waste Characteristics Score			23	26	
[5] Targets					4.5
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	0 1 (2) 3	2	4	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
Total Targets Score			10	55	
[6] If line [1] is 45, multiply [1] x [4] x [5]. If line [1] is 0, multiply [2] x [3] x [4] x [5]		10	350	64,350	
[7] Divide line [6] by 64,350 and multiply by 100			S_{SW} = 16.08		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	0 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
Total Targets Score				39	
4 Multiply 1 x 2 x 3				35,100	
5 Divide line 4 by 35,100 and multiply by 100			S_a = 0		

FIGURE 9
AIR ROUTE WORK SHEET

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Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

[2] Accessibility: no barriers

[3] Containment: none

[4] Toxicity: Cd, Cr(VI), TCE

[5] Pop w/i 1 mi: 2250

Dist to critical habitat: N/A

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
[1] Observed Incident	(0) 45	1	0	45	8.1
If line [1] is 45, proceed to line [4] If line [1] is 0, proceed to line [2]					
[2] Accessibility	0 1 2 (3)	1	3	3	8.2
[3] Containment	0 (15)	1	15	15	8.3
[4] Waste Characteristics Toxicity	0 1 2 (3)	5	15	15	8.4
[5] Targets					8.5
Population Within a 1-Mile Radius	0 1 2 (3) 4 5	4	12	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			12	32	
[6] If line [1] is 45, multiply [1] x [4] x [5] If line [1] is 0, multiply [2] x [3] x [4] x [5]			8100	21,600	
[7] Divide line [6] by 21,600 and multiply by 100			S_{DC} = 37.50		

FIGURE 12
DIRECT CONTACT WORK SHEET

	S	S^2
Groundwater Route Score (S_{gw})		
Surface Water Route Score (S_{sw})		
Air Route Score (S_a)		
$S_{gw}^2 + S_{sw}^2 + S_a^2$		
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		

FIGURE 10
WORKSHEET FOR COMPUTING S_M

	S	S^2
Groundwater Route Score (S_{gw})	30.69	941.76
Surface Water Route Score (S_{sw})	16.08	258.64
Air Route Score (S_a)	0	0
$S_{gw}^2 + S_{sw}^2 + S_a^2$		1200.57
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		34.65
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		20.03

	S	S^2
Groundwater Route Score (S_{gw})		
Surface Water Route Score (S_{sw})		
Air Route Score (S_a)		
$S_{gw}^2 + S_{sw}^2 + S_a^2$		
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		